We claim:

1. A global positioning system satellite emulator for testing the capacity of a GPS system receiver to receive, demodulate and process navigation data and coarse acquisition code comprising:

- an oscillator;

- a radio frequency bi-phase shift key modulator receiving an input from the oscillator;

- a clock signal generator circuit receiving input from the oscillator, for generating a clock signal;

- a G-epoch generator circuit receiving an input from the clock signal generator circuit and for outputting a G-epoch signal, at a frequency different from the clock signal;

- a first linear feedback shift register receiving the G-epoch signal and the clock signal, and for outputting a G-1 signal;

- space vehicle select circuitry including a first EPROM including a set of user activated switches for encoding said first EPROM with G-2 signal delay data for emulating the G-2 signal of a selected satellite;

- a navigation message generator circuit receiving input of the G-epoch signal, said navigation message generator circuit having a second EPROM for storing and outputting a navigation message; and

- glitch elimination circuitry.

2. The satellite emulator of claim 1, where the oscillator is selected to have an output frequency

accuracy of +/- 10 kHz.

3. The satellite emulator of claim 1, where said navigation message generator circuit includes frequency divider circuit.

4. A process for emulating the signal of a global positioning satellite for testing the capacity of a GPS system receiver to receive, decode and demodulate navigation data and coarse acquisition code comprising the steps of:

- initiating at least two phase locked oscillating signals, one of which is a radio frequency and an other is a second frequency;

- bi-phase shift key modulating the radio frequency signal;

- generating a clock signal from the oscillating signal of said second frequency;

- generating a G-Epoch signal from said clock signal;

- inputting the G-Epoch signal and the clock signal to a linear feedback shift register and generating a G-1 signal;

- inputting the G-Epoch signal and the clock signal to a linear feedback shift register and multiplexing the signal from the linear feedback shift register to a pair of multiplexers;

-selectively encoding a first EPROM with G-2 signal delay data of a selected satellite for decoding said multiplexers and outputting a serial G-2 signal from each of the pair of multiplexers;

-modulo-2 adding the output of serial G-2 signal from the pair of multiplexers and outputting G-2 signal of the selected satellite;

-modulo-2 adding the G-1 and G-2 signals and outputting the coarse acquisition code of the

selected satellite;

- generating a navigation message from navigation data stored in an EPROM by outputting a clocked pulse from a counter chain to the EPROM and shifting the navigation data in data words as data bytes in 30 bit subframes of three 8-bit bytes and one 6-bit byte, and shifting out a new byte of the subsequent subframe after the sixth bit of each fourth data byte;

-outputting the navigation message;

-modulo-2 adding the coarse acquisition code and navigation message of the selected satellite and outputting modulated coarse acquisition code and navigation message of the selected satellite;

-delaying the modulated coarse acquisition code and navigation message to allow pulses coming from misaligned logic edges to reach a settled state and outputting the modulated coarse acquisition code and navigation message ;

-bi-phase shift key modulating the modulated coarse acquisition code and navigation message on the radio frequency signal.

6. The process of claim 5 where the clocked pulse shifting the navigation message is input at a frequency of 50 Hz.

7. The process of claim 6 where the second phase locked oscillating signal is at a frequency of 10.23 MHz and the clock signal is at a frequency of 1.023 MHz.

8. A method for testing the capacity of a GPS receiver to lock on to the signal of a selected satellite and to properly receive, decode and process the signal emulator, using a satellite emulator,

comprising the steps of:

disconnecting an existing antenna from an antenna jack of the existing GPS receiver, and positioning a set of switches on the satellite emulator in accordance with the signal characteristics of the particular satellite for which the receiver is to be tested;

connecting the output of the satellite emulator to the vacant antenna jack of the receiver and energizing the satellite emulator and the receiver;

verifying that the receiver has the capacity to receive and process the signal from the satellite, which the user has selected.